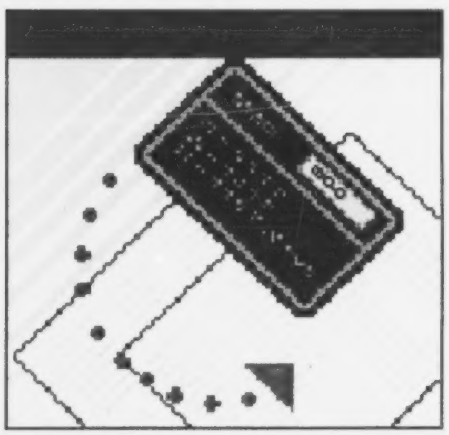
2003/2004

REGIONAL HEALTH AUTHORITY GLOBAL FUNDING

Methodology and Funding Manual



Alberta
HEALTH AND WELLNESS

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Health Funding & Costing
Alberta Health & Wellness

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EXECUTIVE SUMMARY

This manual documents how the total RHA Global Funding amount made available by government for 2003/04 is allocated to regions (note: in addition to Global Funding, provincial funding for RHAs includes Province Wide Services Funding and RHA Non-Base Funding which includes federal equipment funding of $49.6 million).

The **population funding formula** continues to be the starting point and main driver for allocating available funding to RHAs. The major principle behind the population formula is equity - RHA funding shares are based on the relative health care needs of regional populations.

Since different types of people have differing levels of health care needs, the population formula develops funding rates for 124 types of individuals as defined by their age, gender and socio-economic characteristics. These rates are based on observed health care expenditure data from 2001/02, grossed up to the funding year. The same 124 funding capitation rates are applied to each region's projected population for the funding year to determine how much funding each region gets. Overall per capita funding varies by region only because of different population mixes - regions with a higher proportion of seniors, for example, get higher overall average per capita funding. Variations in funding growth rates are driven primarily by the different rates of population growth across regions.

Methodological changes for 2003/04 formula funding include the discontinuation of the ambulatory care fee-for-service top-up to ACCS records, a revised age weighting for Protection, Prevention and Promotion expenditure, and a modified population allocation of dollars for Community Lab services.

Since formula funding is allocated solely according to the population which resides in a region, **import/export adjustments** are made to the formula allocations to compensate for health care services provided to individuals crossing regional boundaries. The total value of identified import/export activity in Alberta for 2003/04 is $319 million, representing a 22% decline from previous year import/export activity (the decline is the result of RHA boundary realignment). The import/export adjustments are based on observed service patterns from 2001/02, excluding a subset of import/export ambulatory visits (total value of $1.3 million) which Alberta Health and Wellness has identified as potentially inappropriately reported multiple records.

The remainder of RHA funding consists of **line item (non-formula) funding**. Non-formula funding is reduced from $249 million (7.7% of total) in 2002/03, to $134 million (3.7%) in 2003/04. Several non-formula items (Community Lab, Community Rehab, MRI Operating, etc.) are rolled into population formula funding, while others (Rosehaven, etc.) have been transferred to Province Wide Services. New non-formula items are Rural Dialysis and a substantially revised Cost Adjustment Factor.

Each RHA is also guaranteed a **minimum 3% funding increase** for 2003/04, prior to Northern Allowance, from their previous year comparable funding. This requires funding top-ups (totalling $27 million) for four regions after the formula, non-formula and import/export allocations are made, the money for which is re-distributed on a proportional basis from the other five regions. Finally, separate allocations are made for the **Mental Health** service transfers.

Errata Page

This errata page reflects:

- a realignment of funding among the regions for mental health services. This realignment is a transition adjustment.

- an adjustment to the minimum guarantee for Region 5 is required in order to maintain the 3% minimum guarantee.

	Original Mental Health Transfer (Mar 13, 03)	Change	Adjusted Mental Health Transfer (Apr 3, 03)	Adjustment to Minimum Guarantee	Revised Global Funding Amount	Percentage Increase
R1	6,745,588	106,372	6,851,960		209,830,385	3.9
R2	3,572,240	-	3,572,240		117,407,983	4.5
R3	41,964,518	77,734	42,042,252		1,275,500,438	5.6
R4	58,784,681	257,856	59,042,537		380,487,523	3.6
R5	4,062,953	(218,085)	3,844,868	147,186	142,898,448	3.0
R6	78,922,588	224,662	79,147,250		1,365,348,053	4.7
R7	6,955,408	(169,982)	6,785,426		167,916,431	3.6
R8	5,341,506	(276,251)	5,065,255		151,234,373	5.0
R9	1,667,769	-	1,667,769		57,866,109	8.7
Sub-Total	208,017,251	2,306	208,019,557	147,186	3,868,489,743	4.8
ACB					158,039,121	12.6
AMHB	33,901,182	(2,306)	33,898,876		33,898,876	4.8
unallocated	2,157,444	-	2,157,444		2,157,444	0.3
TOTAL	**244,075,877**	-	**244,075,877**	**147,186**	**4,062,585,184**	5.1

2003/2004 Health Authority Global Funding

	2002/03 Comparable	Population Formula	Import <Export>	Funding Adjustments	Minimum Guarantee Adjustments	Northern Allowance	Mental Health Transfer	Adjust to Min Guarantee after Mental Health Transfer	TOTAL Provincial Funding	% Change	Federal Equipment Funding	GRAND TOTAL	% Change
RHA				(1)	(2)								
R1	201,941,537	209,317,712	-7,688,703	3,099,343	-1,749,926	0	6,851,960		209,830,385	3.9	2,380,800	212,211,185	5.1
R2	112,321,590	125,440,408	-12,291,884	1,668,624	-981,406	0	3,572,240		117,407,983	4.5	1,329,280	118,737,263	5.7
R3	**1,207,609,013**	**1,150,801,582**	**44,065,409**	**49,225,139**	**-10,633,943**	**0**	**42,042,252**		**1,275,500,438**	**5.6**	16,759,840	1,292,260,278	**7.0**
R4	367,239,577	361,835,053	-43,188,152	5,569,341	-2,771,255	0	59,042,537		380,487,523	3.6	3,764,640	384,252,163	4.6
R5	138,736,357	161,503,051	-25,716,215	1,059,084	2,060,474	0	3,844,868	147,186	142,898,448	3.0	1,716,160	144,614,608	4.2
R6	**1,304,456,095**	**1,129,580,590**	**120,187,269**	**47,521,594**	**-11,088,650**	**0**	**79,147,250**		**1,365,348,053**	**4.7**	17,528,640	1,382,876,693	**6.0**
R7	162,101,983	201,694,663	-51,204,202	1,997,740	7,642,804	1,000,000	6,785,426		167,916,431	3.6	1,889,760	169,806,191	4.8
R8	144,094,578	134,967,925	-13,349,291	10,152,750	11,397,734	3,000,000	5,065,255		151,234,373	5.0	1,711,200	152,945,573	6.1
R9	53,239,809	51,006,391	-10,814,230	6,882,011	6,124,168	3,000,000	1,667,769		57,866,109	8.7	654,720	58,520,829	9.9
Sub-Total	**3,691,740,539**	**3,526,147,374**	**0**	**127,175,626**	**0**	**7,000,000**	**208,019,557**	**147,186**	**3,868,489,743**	**4.8**	**47,735,040**	**3,916,224,783**	**6.1**
ACB (3)	140,377,826								158,039,121	12.6	1,864,960	159,904,081	13.9
AMHB	32,354,322								33,898,876	4.8	-	33,898,876	4.8
Unallocated	2,150,260								2,157,444	0.3		2,157,444	0.3
GLOBAL TOTAL	**3,866,622,946**								**4,062,585,184**	**5.1**	**49,600,000**	**4,112,185,184**	**6.4**

(1) **Rural Adjustments** - include Diagnostic Imaging ($13 million), Cost Adjustment Factor ($11 million), Acute Care Coverage ($4 million), Rural Dialysis ($2 million) and Alternate Payment Plan ($0.6 million).
Urban Adjustments - include Cost Adjustment Factor ($74 million), Acute Care Coverage ($11 million), and Alternate Payment Plan ($11 million).

(2) Each RHA is guaranteed a **minimum 3% funding increase** from their previous year comparable funding, prior to Northern Allowance and Mental Health Transfer. Requires that some regions receive a funding top-up (postive minimum guarantee adjustment), the money for which is re-distributed on a proportional basis from the other RHAs (negative minimum guarantee adjustments).

(3) **Alberta Cancer Board** funding increase includes an additional $10.95 million for cancer drugs.

April 7, 2003

RHA GLOBAL FUNDING MANUAL

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Population Formula Funding

Overview

In the past, health care funding in Alberta was directed to specific facilities, agencies or programs, and was largely determined by previous funding levels. Beginning in 1997/98, Alberta adopted a new method of funding regional health authorities based on population to ensure that each region receives its fair share of the available health dollars.

The intent of population funding is to develop **capitation funding rates for different types of individuals** which are reflective of their relative health care needs, and then apply these rates to each region's population. Relative health care needs are measured by the historical health care expenditures for the different types of individuals. Thus, a region's funding share is determined by its population size and mix (age, gender and socio-economic composition). Adjustments are then made for services provided to residents outside of their home region.

The size of the Population Formula Funding is determined by total RHA Global Funding less Non-Formula Funding.

SUMMARY - 2003/04 Population Formula Funding

RHA	2003/04 Projected Population	Net* Per Capita Rate (rounded)	General Population Formula Allocation	Modified Formula		TOTAL Population Formula Funding
				PPP Allocation	Community Lab Allocation**	
R1	151,815	1,304	197,990,866	8,271,031	3,055,815	209,317,712
R2	99,906	1,195	119,408,027	4,051,425	1,980,956	125,440,408
R3	1,126,567	962	1,083,492,541	43,011,653	24,297,388	1,150,801,582
R4	300,660	1,136	341,427,639	14,507,130	5,900,284	361,835,053
R5	110,223	1,402	154,578,005	4,708,309	2,216,737	161,503,051
R6	985,259	1,080	1,063,707,883	41,958,967	23,913,740	1,129,580,590
R7	177,704	1,057	187,919,134	10,387,047	3,388,481	201,694,663
R8	132,134	951	125,634,020	6,872,975	2,460,929	134,967,925
R9	70,251	649	45,571,831	4,227,093	1,207,467	51,006,391
Total	**3,154,519**	**1,052**	**3,319,729,946**	**137,995,631**	**68,421,797**	**3,526,147,374**

* The same funding capitation rates are applied to each region's population, but the overall **net** per capita rate varies by region because of the different population mix in each region.

**Community Lab allocation includes an import/export component in addition to population capitation funding.

Population Formula Funding Methodology

1. Collect RHA Patient Activity Data

The goal is to assign all regional health care expenditures to individual demographic groups for determination of capitation rates. The first step in this pursuit is the collection of comprehensive data on all RHA patient activity. For 2003/04 funding, 2001/02 was generally the most recent year for which provincial activity data was available. Data coverage of regional health service activities is relatively comprehensive, although a few gaps currently exist such as much of promotion/protection/prevention (PPP) and community lab activity. Because of the limited PPP and community lab activity data, these sectors are excluded from the general population formula, with their funding dollars allocated by a modified population-based funding allocation method.

Acute hospital inpatient care - for 2003/04 funding, activity data are hospital inpatient separations from the 2001/02 CIHI Inpatient Morbidity file. All acute care facilities in Alberta report monthly inpatient separations (over 300,000 records annually) to the Canadian Institute for Health Information (CIHI) through a standard set of data elements. CIHI groups the discharges into CMGs (Case Mix Groups) with a complexity overlay for most CMG's and an age category where warranted.

After Alberta Health and Wellness receives Alberta's annual file from CIHI, several adjustments are made before it is used for funding purposes. These adjustments include the standard practice of converting the patient Personal Health Numbers (PHNs) to anonymous scrambled numbers to protect patient identity, and subjecting the file to several edits. Data record adjustments include an adjustment for hospital transfers, and then re-grouping the data. Also, Province Wide Services inpatient activity is flagged and excluded for purposes of Population Formula Funding.

Hospital based ambulatory care - for the first two years of Population Funding (1997/98 and 1998/99), activity for hospital-based ambulatory care was represented by physician fee-for-service claims for day/night procedures, clinic and emergency services in hospitals. To address the data gap, Alberta Health and Wellness actively pursued comprehensive ambulatory care activity and costing data collection.

With implementation of the Ambulatory Care Classification System (ACCS), all acute care facilities in the province are now reporting ambulatory care visits, which forms the ambulatory care funding activity dataset. The 2001/02 ACCS data base contains 5.9 million records. Because of the substantial increase which has occurred in the reporting of ACCS data, and to simplify the formula, the temporary practice of supplementing the ACCS data stream with unmatched fee-for-service ambulatory care claim records was discontinued for 2003/04 funding. As for hospital inpatient activity, Province Wide Services (e.g. dialysis) are flagged and excluded from the ACCS database.

For 2003/04 funding, an edit (see Appendix C) was applied by Alberta Health & Wellness to 2001/02 RHA reported ACCS data to identify inappropriate multiple records. This is a temporary edit felt necessary until the regions investigate the cause of apparent duplicates and properly resolve any problems at source.

Continuing care - activity data are from the Resident Classification System (RCS): all residents of provincial continuing care facilities and supportive housing are classified once a year ("snapshot") using a standard format. The RCS data reported to Alberta Health and Wellness is client specific and includes demographic information and eight indicators/three domains which place a client into one of seven classification categories (A to G scale) representing increasing acuity levels or resources needed for care. RCS data used for 2003/04 funding were collected from the Fall 2001 classification involving approximately 13,000 residents.

Home care - activity data come from the Home Care Information System (HCIS): all RHAs report monthly home care data through a standard set of data elements. The data are client specific (with PHNs) and include demographic, client classification and service information (self-managed care and six service types - assessment, case co-ordination, direct professional, personal care, home support, indirect services). For global funding, services provided under the Children With Complex Health Needs program are excluded because these are funded through Province Wide Services. The activity data used for 2003/04 funding are the HCIS 2001/02 hours paid.

2. Attach Relative Cost Weights

The next step in the Population Formula allocation methodology is to determine an RHA expenditure for all of the patient activities collected in step one. To determine expenditures, relative cost weights are first attached to each activity record. The key is to have accurate *relative* costs (values) within a service category, which are then properly weighted in step three.

Acute hospital inpatient care - valuation of this activity employs CIHI's CMG/RIW methodology. RIWs (Resource Intensity Weights) are attached to each CMG separation on the Hospital Morbidity File. These RIWS are now exclusively calculated from Canadian (Alberta, Ontario, B.C.) cost records. Alberta currently supplies 58% of the costing records used by CIHI to calculate RIWs, and therefore the RIWs largely reflect the Alberta cost structure.

Hospital based ambulatory care - relative cost weights applied to ACCS visits are the ACCS average costs derived by the Alberta Costing Partnership from preliminary 2001/02 cost information provided by three regions (Calgary, Crossroads, Edmonton) and blended with cost data from the previous year (and top-ups from years before that if needed).

Continuing care - costs for the A to G patient classifications were determined several years ago for funding purposes. For 2003/04 funding, these relative cost weights, with some inflation factor, are still used:

A	-	$11,532.22
B	-	$15,027.84
C	-	$19,522.81
D	-	$22,984.98
E	-	$31,230.64
F	-	$37,799.57
G	-	$63,230.66

Home care - self-managed care is valued at actual reported costs, while hourly cost weights for each of the six general service types are 2001/02 provincial average cost rates calculated by adding up all provider costs for all regions and dividing by the total number of providers:

- Assessment - $30.89
- Case Coordination - $29.27
- Direct Professional - $29.34
- Personal Care - $12.73
- Home Support - $11.81
- Indirect Services - $25.56

Only the direct provider costs are included in the calculations. Indirect costs (such as administration, travel costs, management and building depreciation) are not included because these costs are reported in varying degrees across regions and are not client specific.

3. Scaling to Pool (Budget) Size

The activity data collected in step one are not entirely comprehensive of all RHA activity nor reflective of volume changes in the funding year, while the cost data collected in step two are relative weights within a sector and not necessarily reflective of the full actual costs of the services in the funding year. To compensate for these deficiencies, the expenditure weights (activity times relative cost weight) in each sector are scaled so that the total summed expenditure equals the total pool size (expected expenditure) for that sector in the funding year. A single scaling factor is applied to each sector's expenditure weights. This scaling is done only to achieve proper expenditures (capitation rates) in the funding year for each sector.

Sector pool sizes are determined by the total dollars available for formula funding (excluding community lab) and the historical expenditure distribution across activity areas. For 2003/04 funding, the expenditure distribution across activity areas was based on the 2001/02 reported spending pattern of all regions combined, as determined from Management Information System (MIS) data.

All RHAs are required to submit to Alberta Health and Wellness financial and statistical MIS data, by facility, which reconcile to the RHA's audited financial statements. A program developed by Alberta Health and Wellness in the MIS-EDT system is then used to assign the RHA operating expenditures (excluding such items as building amortization and unfunded pension accrual adjustment) to the various funding pools/activity. All cost allocations are done on a facility-specific basis and then added up to the RHA and then provincial level. Improvement to the assignment of MIS data into the appropriate pools is ongoing. Based on the 2001/02 MIS distribution of RHA expenditures (reporting regions), the following funding pool sizes were used for 2003/04 funding:

Activity	2003/04 Funding Pool Size	%
Acute Inpatient	$1,443.5 M	**41.7**
Ambulatory Care	$868.6M	**25.1**
Continuing Care	$692.6M	**20.0**
Home Care	$315.1M	**9.1**
PPP	$138.0M	**4.0**
TOTAL	$3,457.7 Million	**100.0**

These pool sizes should not be interpreted as targeted funding. Delineation of total funding into activity pools is done only for data weighting purposes.

4. Calculate Expenditure (Capitation) Rates for Demographic Groups

The scaled activity expenditures (steps 1-3) are assigned to individual demographic groups to determine funding capitation rates for application to each region's population. If all types of individuals had the same level of health care need, equal per capita funding for regions would suffice. However, it is well established that significant variation in health needs results from variations in age, gender and socio-economic status. For example, old people, on average, require much more health care than younger people, while individuals on social assistance generally require more health care than individuals of the same age and gender but not receiving social assistance.

Thus, the funding model develops capitation rates for 124 different population groups based on varying age (20 groupings), gender (2 groupings) and socio-economic status (4 groupings - welfare, aboriginal, premium subsidy, other). **Appendix B** contains information on **population** - population data source, determining region of residence, the 124 demographic groups, and population projection.

To calculate the 124 capitation rates, all the individual patient activity expenditures (developed in the first three steps) are assigned into one of the 124 demographic groups. How is this done? For each activity the individual is linked via their Personal Health Number (PHN) on the activity record to the Population Registry file to determine which demographic group the individual belongs to (note: Alberta Health and Wellness uses scrambled PHNs to protect the identity of individuals at all times). Where proper PHNs do not exist (less than one percent of all records),

or where the PHN cannot be matched up to or found on the March 31 Population Registry, the records must be excluded from calculation of the capitation funding rates (although they are used for the import/export adjustments wherever possible).

The summed expenditure in each of the 124 groups is then divided by the total projected Alberta population for that group to derive the provincial average per capita rate for that group, which is then used for funding. This approach assumes that historical health care utilization serves as a proxy or measure of relative health care need, and that age, gender and socio-economic characteristics will be accurate predictors of variations in population health expenditure needs (or, more precisely, health expenditure risks).

The following table lists the 2003/04 funding capitation rate (rounded) for each of the 124 demographic groups. These capitation rates vary from a low of $217 per person (*age 10-14 female regular*) to $26,402 per person (*age 90+ female*).

2003/04 FUNDING CAPITATION RATES ($)

Age	Sex	Regular	Premium Support	Aboriginal	Welfare
<1	F	2,032	2,465	3,342	2,911
1 - 4	F	379	506	929	1,003
5 - 9	F	265	356	366	692
10 - 14	F	217	283	257	473
15 - 19	F	334	443	760	1,346
20 - 24	F	426	620	1,154	2,477
25 - 29	F	609	660	1,190	3,364
30 - 34	F	656	783	1,221	3,404
35 - 39	F	563	708	1,177	3,236
40 - 44	F	436	713	1,039	3,531
45 - 49	F	490	779	1,130	3,610
50 - 54	F	585	1,122	1,342	4,140
55 - 59	F	731	1,191	2,045	4,247
60 - 64	F	924	1,565	1,830	4,928
65 - 69	F	1,857	-	-	-
70 - 74	F	2,879	-	-	-
75 - 79	F	4,885	-	-	-
80 - 84	F	7,965	-	-	-
85 - 89	F	14,339	-	-	-
90+	F	26,402	-	-	-
<1	M	2,333	2,486	3,729	4,765
1 - 4	M	526	606	1,106	998
5 - 9	M	376	459	424	894
10 -14	M	270	330	304	515
15 - 19	M	278	327	397	806
20 - 24	M	218	309	574	2,595
25 - 29	M	216	340	560	3,810
30 - 34	M	249	414	631	3,254
35 - 39	M	291	562	769	3,648
40 - 44	M	324	626	983	2,975
45 - 49	M	378	714	1,064	3,621
50 - 54	M	515	1,063	1,405	3,749
55 - 59	M	672	1,307	1,421	3,950
60 - 64	M	1,024	2,255	1,803	5,660
65 - 69	M	2,155	-	-	-
70 - 74	M	3,085	-	-	-
75 - 79	M	4,861	-	-	-
80 - 84	M	7,282	-	-	-
85 - 89	M	12,128	-	-	-
90+	M	21,946	-	-	-

5. Apply Capitation Rates to Each Region's Projected Population

The 124 calculated capitation rates are applied to each region's projected population (see Appendix B) to determine regional funding allocations. In other words, funding for each region is determined by multiplying the projected number of individuals in that region in each of the 124 demographic groups by the corresponding capitation rate (estimated provincial average health expenditures per person).

Because the capitation rates vary by demographic group, and because the demographic composition differs by region, a different *overall* per capita funding rate occurs for each Regional Health Authority. Northern regions tend to have the lowest overall per capita funding because of their younger populations, while East Central and Chinook regions get the highest per capita funding because of their higher proportion of seniors.

6. Protection, Prevention and Promotion Allocation

The Protection, Prevention and Promotion funding pool covers:

- ***Health Protection*** - immunizations, communicable disease control, chronic disease programs, environmental health, dental health, community relations, sexual and reproductive care.
- ***Community Health Services*** - community health nursing, family planning, health promotion/education, breast screening, drug awareness, mental heath promotion, pre-natal teaching, public health, nutrition, school health, etc.

Because of the limited data for promotion/protection/prevention activity, this sector is excluded from the general population formula. A separate allocation of the dollars in this funding pool is determined by a modified population formula.

The first step in this funding allocation methodology is to split the PPP pool into three broad age group categories. The proportions are based on the judgement of Alberta Health and Wellness personnel involved with these programs:

	% Split
Age 0-19	62%
Age 20-64	26%
Age 65+	12%
Total	**100%**

Next, for each RHA, the socio-economic population numbers in each of the three broad age groups are weighted according to the scheme below. Again, this weighting scheme (relative utilization by socio-economic group) was estimated based on the judgement of those involved with this health service area:

	Weighting
Regular	1
Subsidy	2
Aboriginal	5
Welfare	5

Each region's share of the three funding age sub-pools for each region is determined by its share of the estimated provincial weighted population. This led to the following allocations of the Protection, Promotion and Prevention pool:

2003/04 Protection, Promotion and Prevention Pool Allocation

RHA	PPP Allocation	Share
R1	8,271,031	6.0%
R2	4,051,425	2.9%
R3	43,011,653	31.2%
R4	14,507,130	10.5%
R5	4,708,309	3.4%
R6	41,958,967	30.4%
R7	10,387,047	7.5%
R8	6,872,975	5.0%
R9	4,227,093	3.1%
Total	**137,995,631**	**100.0%**

7. Community Lab Allocation

Alberta's health laboratory service system was restructured in July 1995 to consolidate, under RHA authority, the delivery of all lab testing services (excluding services provided by the Provincial Laboratories of Public Health).

Under population based funding, expenditures on lab services for hospital-patients are bundled into the inpatient and outpatient MIS expenditures used to derive RHA activity pools, and these pools are subject to population formula allocation.

However, sufficient data has not been generated for a population based allocation of funding for non-hospital (community) patient lab tests (ordered from physician offices). When these services were de-listed from AHCIP fee-for-service in 1995, an amount of $65.2 million was transferred from the AHCIP E-schedule to RHA funding. An initial non-formula allocation of this funding to regions was based on the physician requests for lab services by resident region (where the test originated). This non-formula allocation has remained unchanged up to 2003/04, save some minor inflation increases.

For 2003/04, Community Lab non-formula funding is replaced by modified formula funding. The Community Lab pool (budget) size is kept at its 2002/03 level of $68.4 million, pending further analysis, and capitation rates are calculated from lab data (limited) previously collected by Alberta Health and Wellness from RHAs. Given that sufficient data was not available to permit a comprehensive import/export calculation, a special temporary methodology was used to calculate import/export: net import/export is calculated for each region as the difference between the historical Community Lab funding per region and the new population-based amount, with the differential adjusted down for the estimated reduction (27%) in import/export resulting from RHA boundary realignment. These factors led to the following allocations of the Community Lab pool:

2003/04 Community Lab Pool Allocation

RHA	Community Lab Allocation	% Share
R1	3,055,815	4.5
R2	1,980,956	2.9
R3	24,297,388	35.5
R4	5,900,284	8.6
R5	2,216,737	3.2
R6	23,913,740	35.5
R7	3,388,481	5.0
R8	2,460,929	3.6
R9	1,207,466	1.8
Total	**68,421,796**	**100.0**

Non-Formula (Line Items) Funding

Overview

Some of RHA Global Funding is provided outside of the population formula. There are several possible reasons for having non-formula line items:

- where sufficient data does not exist for a proper population formula allocation
- to compensate for geographical variances in expenditure needs beyond that determined from differences in regional demographic composition
- to compensate for variances in RHA unit costs, because the formula provides the same provincial average per capita funding rates to each RHA
- where targeted funding is desirable.

In an effort to improve simplicity and inter-regional equity, the number of non-formula items was greatly reduced for 2003/04 funding. Non-formula funding totals $134.2 million for 2003/04 (compared to $249.1 million in the previous year). The following non-formula funding items from 2002/03 (totalling $153.9 million) were rolled into population formula funding for 2003/04:

- Community Lab Services
- Community Rehabilitation Services
- MRI Operating
- Other Physician Compensation
- Action for Health
- Outpatient Ambulance Transfers
- Costing Project

The following non-formula funding items from 2002/03 (totalling $12.0 million) were transferred to Province Wide Services funding for 2003/04:

- Rosehaven
- STD/TB Clinics
- Emerging Drugs
- Education Resource Centre
- 1-800 AIDS Hotline

In addition, the following RHA non-base (outside of Global Funding in 2002/03) funding items (totalling $1.5 million) were rolled into population formula funding for 2003/04:

- Short Term Equipment Loaner Pool program
- High Risk Foot Clinic
- Expansion of Orthopedic Surgery
- Fetal Alcohol syndrome

2003/04 Non-Formula Funding

RHA	Cost Adjustment Factor	Acute Care Coverage	Diagnostic Imaging Adjustment	Alternate Payment Plan	Rural Dialysis	TOTAL NON FORMULA
R1	0	874,024	1,056,994	527,347	640,978	**3,099,343**
R2	0	503,368	879,395	33,654	252,207	**1,668,624**
R3	37,617,050	5,482,900	0	6,125,189	0	**49,225,139**
R4	0	1,166,636	3,647,826	63,549	691,330	**5,569,341**
R5	0	0	957,325	0	101,759	**1,059,084**
R6	36,709,604	5,999,500	0	4,812,490	0	**47,521,594**
R7	0	0	1,867,880	0	129,860	**1,997,740**
R8	6,159,690	583,470	3,294,706	0	114,884	**10,152,750**
R9	5,326,641	390,102	1,107,388	18,994	38,886	**6,882,011**
TOTAL	**85,812,985**	**15,000,000**	**12,811,514**	**11,581,223**	**1,969,904**	**127,175,626**

Non-Formula (Line Items) Funding - Description

Cost Adjustment Factor ($85,812,985)

The Cost Adjustment Factor is intended to recognize cost factors outside of RHA control which result in additional service delivery costs in some regions. This is necessary because the funding formula applies the same per capita funding rates to each RHA's population groups, assuming service delivery costs are the same across all RHAs.

Historically, three adjustments to formula funding - Cost of Doing Business, Assured Access, Teaching & Research - have been made to compensate regions for their higher than average service delivery costs. However, an issue for RHA funding has been the lack of science behind the measured impact of these cost adjustment factors. For 2003/04, a substantially revised cost adjustment factor has been developed.

For **hospital inpatient** services, Alberta Health and Wellness, in consultation with RHAs, has constructed a methodology for statistically measuring RHA cost variations. The methodology uses regression analysis to quantify the impact of various factors (such as patient remoteness) on regional cost variances per adjusted weighted inpatient separation (MIS determined). To determine a funding cost adjustment factor, the calculated regional cost variation index (Alberta total = 1.0) is applied to regional 2003/04 hospital inpatient utilization (provincial average utilization), adjusted for import/export, as determined by the funding formula. The cost index ranges from a low of 0.70 for Regions 5 and 7, to 1.15 for Region 3 (Calgary). Only the two urban regions (Calgary, Capital) have a cost index above the provincial average, largely the result of the higher costs of their large teaching hospitals. The resulting regional cost adjustment factor

amounts are then discounted by 50% given questions around the preciseness of the cost variation calculations.

For the **non-inpatient** RHA sectors, the historical Cost of Doing Business and Assured Access methodologies are applied to determine additional cost adjustments. For Cost of Doing Business, a cost supplement of 25% is applied for Regions 8 and 9, and a cost supplement 12.5% for Region 7, on their non-salary non-inpatient budget (estimated to be 25% of their 2003/04 provincial average utilization, adjusted for import/export). Assured Access funding is calculated by applying, to the remote population in each region, special rates equal to 25% (for remote population) and 50% (for very remote population) of the average non-inpatient per capita funding rate. A new determination of remote population for 2003/04 funding was made based on 2001 Census data, utilizing the previously established Assured Access methodology.

The results from the above calculations (inpatient and non-inpatient cost adjustment factors) were combined for each RHA, and all negative sums set to zero:

Cost Adjustment Factor

Table A - Inpatient Sector

RHA	2003/04 Inpatient Utilization ($M)	Cost Variation Index	Cost Adjustment Factor ($M)	50% Discounted Factor ($M)
R1	76.2	-0.14	-10.6	**-5.3**
R2	41.1	-0.28	-11.5	**-5.7**
R3	498.7	0.15	74.7	**37.4**
R4	116.0	-0.26	-29.9	**-15.0**
R5	46.1	-0.30	-14.0	**-7.0**
R6	535.7	0.14	73.4	**36.7**
R7	45.4	-0.30	-13.4	**-6.7**
R8	46.4	-0.13	-6.3	**-3.1**
R9	14.2	-0.04	-0.5	**-0.3**
	1,419.7			

Table B - Remaining Sectors (Cost of Doing Business)

RHA	2003/04 Non-IP Utilization ($M)	Supplies Portion 25% ($M)	Cost of DB Adjustment Factor	Cost of DB Adjustment Factor ($M)
R1	-	-	-	-
R2	-	-	-	-
R3	-	-	-	-
R4	-	-	-	-
R5	-	-	-	-
R6	-	-	-	-
R7	105.3	26.3	0.125	**3.3**
R8	74.8	18.7	0.25	**4.7**
R9	25.5	6.4	0.25	**1.6**
				9.6

Table C - Remaining Sectors (Assured Access)

RHA	Remote Population	Very Remote Population	Assured Access Funding Rate	A. A. Adjustment Factor ($M)
R1	2,355	268	$166.18	**0.5**
R2	5,225	3,238	remote	**1.9**
R3	1,447	15		**0.2**
R4	7,072	2,138	$332.35	**1.9**
R5	5,807	3,039	very remote	**2.0**
R6	0	0		**0**
R7	9,540	2,670		**2.5**
R8	10,548	8,608		**4.6**
R9	6,447	8,804		**4.0**
	48,442	28,781		**17.6**

Table D - TOTAL (SUMMED) COST ADJUSTMENT FACTOR

RHA	Total Cost Adjustment Factor ($M)	Negatives Set to Zero ($M)
R1	-4.8	0
R2	-3.8	0
R3	37.6	37.6
R4	-13.1	0
R5	-5.0	0
R6	36.7	36.7
R7	-0.9	0
R8	6.2	6.2
R9	5.3	5.3
	58.1	85.8

Acute Care Coverage ($15,000,000)

Starting 2001/02, certain RHAs with larger hospitals were to receive on a continuing basis $15 million to address patient coverage needs in acute care hospitals. Funding can be used for expansion of existing programs, and/or establishment of new programs and services involving physicians, nurses, clinical assistants, medical residents and/or nurse practitioners. This funding is administered by the Health Workforce Division of Alberta Health and Wellness. For more information, contact Deb Kaweski @ (780) 415-0212.

Diagnostic Imaging Adjustment ($12,821,751)

Population formula funding provides each RHA with the estimated provincial average expenditure, including provincial average Diagnostic Imaging (DI) expenditure. However, because of varying regional access to private DI clinics, where the DI is paid for out of the physician fee-for-service pool, some regions require less than the provincial average DI expenditure while other regions require more. Thus, a DI Adjustment was introduced in 2000/01 to compensate for the different population needs for RHA DI services (as measured from radiology fee-for-service claims), and to remove financial incentives for RHAs to encourage private DI services. Beginning 2001/02, the negative adjustments for Calgary and Capital were removed.

Alternate Payment Plan ($11,581,221)

With regionalization, Alberta Health contracts with individual physicians were divested to certain regions (Calgary, Capital, Chinook, David Thompson, Palliser, Northern Lights), along with special funding to cover the contracts. These historical allocations have continued.

Rural Dialysis Funding ($1,969,904)

This is a new non-formula funding item starting 2003/04. All renal dialysis costs for Calgary and Capital are funded out of Province Wide Services. However, rural RHAs also incur costs for the "hospitality" support (lab procedures, environmental services, etc.) of dialysis satellite units in their region. These support costs have historically been borne by rural RHAs out of their global funding. To ensure equitable treatment for all regions, a new non-formula item covers the dialysis support costs of rural regions. For 2003/04, this funding is based on an estimated rural RHA support cost of $34.29 per hemodialysis run, and a projected 57,445 rural hemodialysis satellite runs.

Overview

Since population formula funding is allocated solely according to the population which resides in a region, an import/export adjustment must be made to the allocations to compensate for health services provided to individuals who cross regional boundaries to receive services. Such activity now accounts for about nine percent of total regional health care activity in the province. An amount of $319.4 million is the total valuation of import/export activity identified for 2003/04 funding. The 22% decline in total import/export activity from 2002/03 funding reflects RHA boundary realignment.

Import/Export Funding Methodology

1. Identification of Import/Export Activity

The first step in calculating import/export adjustment is to identify inter-regional activity on the data sets used for population formula funding. For 2003/04 funding, activity data sets are available for each RHA sector except protection, prevention and promotion. The data sets consist primarily of 2001/02 data. As explained previously, the scaling of calculated 2001/02 activity expenditure up to total budget pool is intended to compensate for any non-comprehensiveness of activity (including import/export) as well as volume increases up to the funding year.

An import/export is identified for any activity where the region of service (as determined by the facility number or service location on the file) is different from the region of patient residence (as determined from the Population Registry file on March 31, 2002). For services where the region of patient residence is not determinable, it is assumed that they are local cases and not subject to import/export adjustment.

For hospital inpatient services, Calgary's forensic psychiatry program from the Peter Lougheed Hospital, which is funded outside of RHA Global Funding, is excluded from import/export. Province Wide Services are also excluded.

For ambulatory care services, an edit (see Appendix C) was applied by Alberta Health & Wellness to 2001/02 RHA-reported ACCS data to identify inappropriate multiple records resulting from inconsistent reporting and duplicates. This is a temporary edit felt necessary until regions investigate the cause of these duplicates and properly resolve any problems at source. The edit resulted in the removal of 11,893 import/export ACCS records.

For continuing care, identification of import/export is more complicated than for other regional services. For residents classified twice by the Resident Classification System in different

facilities, only the second classification is considered. Also, the region of residence for import/export (but not for general funding allocation) is set as the region in which the person lived (mailing address) one year prior to admission to the continuing care facility system. Prior residency is checked for AHCIP registrations going back to April 1, 1984, which covers the large majority of continuing care residents. For those records where the provider RHA differs from the patient RHA one year prior to admission, an import/export service is identified. For resident records that do not have an AHCIP registration number one year prior to admission, no import/export identification is made.

For home care, no import/export activity is identified for 2003/04 funding because no provider site is identified on the activity records.

2. Valuation of Import/Export Activity

The next step is to value the identified import/export activity. Because the valuation methodology used is generally the same as for the funding capitation rates (i.e. expenditure weights scaled up to sector pool size), general volume and price increases for the funding year are incorporated into the total import/export valuation.

Hospital inpatient - the same methodology used in determining funding capitation rates (RIWs scaled by pool size) is used to value identified import/export inpatient services. However, as the import/export activity does not require age gender and socio-economic identification, the total volume of activity records used to calculate import/export is slightly higher than that used for capitation funding (i.e. some activity records without a PHN cannot be used in the calculation of capitation rates, but can be used for import/export calculation where a valid Alberta postal code exists on the record to identify patient region residence). This leads to a correspondingly slightly lower scaling factor - the dollar multiplier for the 2001/02 import/export inpatient RIW is $3,609.86.

Ambulatory care - again, the same methodology used for the funding capitation rates (ACCS cell expenditures scaled by pool size) is used to value identified import/export services, with a slightly lower dollar multiplier because additional activity records can be utilized.

Continuing care - the values attached to identified import/exports are the Resident Classification System A to G expenditure weights (see page 7), not scaled by pool size (because of concerns about the accuracy of the estimated total continuing care pool size), less the continuing care capitation funding rate already received by the service region because that person is included in that region's resident population. As explained previously, for Population Formula allocation, patients in continuing care facilities are considered as residents of the region in which the facility is located. However, for import/export identification, the region of residence is defined as the region where the person lived one year prior to their admission to the continuing care facility system. Because the region where the facility is located is already the recipient of the general Population Formula Funding (capitation rate) for that person, the continuing care component of the capitation rate is adjusted out of any import compensation it also receives.

3. Application of Import/Export to Regional Funding Allocations

The value of each identified import/export activity is assigned to the region where the service is provided (import), and deducted from the region where the patient comes from (export). Thus, summed import/export adjustments over all nine regions is zero - total imports (positive) equal total exports (negative). However, individual RHAs have a net positive or negative adjustment depending on whether they are a net-importer or net-exporter of regional health services. Both Calgary and Capital RHAs service a significant degree of activity from the other regions, and therefore are the recipients of a large *positive* net import/export adjustment ($44 million and $120 million, respectively). All other regions receive a *negative* net import/export adjustment.

The special **ACCS edit** patch referred to previously had the following impacts on net import/export funding adjustments:

	Impact ($000)
R1	307,085
R2	115,510
R3	(655,689)
R4	335,109
R5	186,359
R6	(660,643)
R7	356,651
R8	(74,877)
R9	90,495
Urban Impact	**(1,316,332)**
Rural Impact	**1,316,332**

2003/04 Import/Export Funding Adjustments

	Inpatient			Ambulatory Care		
RHA	Import	Export	Net	Import	Export	Net
R1	6,121,582	12,629,486	(6,507,904)	4,400,672	5,473,507	(1,072,835)
R2	3,120,317	12,060,561	(8,940,244)	1,579,891	5,204,266	(3,624,375)
R3	45,388,246	12,919,444	32,468,803	19,963,185	9,223,787	10,739,398
R4	12,409,661	41,851,571	(29,441,910)	7,411,015	21,579,112	(14,168,097)
R5	7,406,706	24,382,408	(16,975,702)	4,438,829	13,469,928	(9,031,099)
R6	101,140,650	18,298,221	82,842,429	52,646,546	12,913,941	39,732,605
R7	6,789,098	43,781,613	(36,992,515)	7,631,186	22,732,932	(15,101,746)
R8	4,582,757	13,742,649	(9,159,892)	3,415,872	7,706,178	(4,290,306)
R9	1,311,105	8,604,170	(7,293,065)	2,027,228	5,210,773	(3,183,545)
Total	188,270,122	188,270,122	0	103,514,425	103,514,425	0

	Continuing Care			TOTAL		
RHA	Import	Export	Net	Import	Export	Net
R1	1,190,245	1,298,209	(107,964)	11,712,499	19,401,202	**(7,688,703)**
R2	1,218,505	945,770	272,735	5,918,713	18,210,597	**(12,291,884)**
R3	5,168,376	4,311,168	857,208	70,519,807	26,454,399	**44,065,409**
R4	5,250,024	4,828,169	421,855	25,070,700	68,258,852	**(43,188,152)**
R5	3,362,121	3,071,536	290,585	15,207,656	40,923,871	**(25,716,215)**
R6	6,348,766	8,736,531	(2,387,765)	160,135,961	39,948,693	**120,187,269**
R7	3,821,198	2,931,139	890,059	18,241,482	69,445,684	**(51,204,202)**
R8	1,175,981	1,075,073	100,908	9,174,610	22,523,900	**(13,349,291)**
R9	56,701	394,321	(337,620)	3,395,034	14,209,264	**(10,814,230)**
Total	27,591,915	27,591,915	0	319,376,462	319,376,462	**0**

Minimum Guarantee Adjustments

Overview

As in previous years, each RHA is guaranteed a minimum funding increase from their previous year comparable funding. For 2003/04, each RHA is guaranteed a minimum **3.0% funding increase**, prior to Northern Allowance and Mental Health Transfer. This guarantee requires that some regions receive funding top-ups (positive minimum guarantee adjustments totalling $27 million), the money for which is re-distributed on a proportional basis from the other RHAs (negative minimum guarantee adjustments).

Other Adjustments

Overview

For 2003/04 RHA Global Funding, two adjustments are made after the Minimum Guarantee adjustments:

- Northern Allowance
- Mental Health transfer

Northern Allowance ($7,000,000)

Funding supplements for Regions 7, 8 and 9 (totalling $7.0 million) are related to the unique characteristics of those regions not accommodated within the funding formula. In particular, Northern Lights has the smallest population in support of a regional hospital and faces unique staffing challenges.

Mental Health Transfer ($210,177,001)

Selected community and facility mental health services are divested from the Alberta Mental Health Board to RHAs beginning 2003/04. For 2003/04, the same regional funding distribution (shares) will be maintained:

	2002/03 Comparable	2003/04 Budget	Adjustments	Revised 2003/04 Budget	Change from 2002/03 Amount	%
R1	6,434,835	6,745,588	106,372	6,851,960	417,125	6.5%
R2	3,407,673	3,572,240	-	3,572,240	164,567	4.8%
R3	40,031,334	41,964,518	77,734	42,042,252	2,010,918	5.0%
R4	56,076,643	58,784,681	257,856	59,042,537	2,965,894	5.3%
R5	3,875,780	4,062,953	(218,085)	3,844,868	(30,912)	-0.8%
R6	75,286,856	78,922,588	224,662	79,147,250	3,860,394	5.1%
R7	6,634,988	6,955,408	(169,982)	6,785,426	150,438	2.3%
R8	5,095,434	5,341,506	(276,251)	5,065,255	(30,179)	-0.6%
R9	1,590,935	1,667,769	-	1,667,769	76,834	4.8%
Subtotal	**198,434,478**	**208,017,251**	**2,306**	**208,019,557**	**9,585,079**	**4.8%**
Unallocated	2,150,260	2,157,444	-	2,157,444	7,184	0.3%
Total	**200,584,738**	**210,174,695**	**2,306**	**210,177,001**	**9,592,263**	**4.8%**

RHA FUNDING COMPARISON WITH PRIOR YEAR

2002/2003 FUNDING	2003/2004 FUNDING
Population active AHCIP registrations as of March 31, 2001, projected to September 30, 2002 on the basis of historical growth rates over the previous year, scaled to an overall annual provincial population increase of 1.5% for 2002/03	**Population** active AHCIP registrations as of March 31, 2002, projected to September 30, 2003 on the basis of absolute historical growth over the previous year, scaled to an overall annual provincial population increase of 1.8% for 2003/04
Activity Data 1. *hospital inpatient*: 2000/01 Morb File CMGs 2. *ambulatory care*: 2000/01 ACCS visits (5.5 million records) and FFS top-up (0.3 million records) 3. *continuing care*: Fall 2000 Resident Classification patients 4. *home care*: 1999/00 HCIS provider hours 5. *private clinics*: 2000/01 data from five regions	**Activity Data** 1. *hospital inpatient*: 2001/02 Morb File CMGs 2. *ambulatory care*: 2001/02 ACCS visits (5.9 million records) and no FFS top-up; community rehab no longer excluded 3. *continuing care*: Fall 2001 Resident Classification patients 4. *home care*: 2001/02 HCIS provider hours 5. *private clinics*: data now reported through ACCS (ambulatory care)
Relative Cost Weights 1. *hospital inpatient*: CIHI RIW 2000 2. *ambulatory care*: ACP ACCS cell average costs based on two year (00/01, 99/00 blended) cost records of Calgary, Crossroads, Capital; fees for FFS top-up 3. *continuing care*: A to G values, with special rates for CHA subset 4. *home care*: 1999/00 HCIS provincial average direct hourly cost for provider types 5. *private clinics*: 2000/01 fee data from five regions	**Relative Cost Weights** 1. *hospital in-patient*: CIHI RIW 2001 2. *ambulatory care*: ACP ACCS cell average costs based on two year (prelim 01/02, 00/01 blended) cost records of Calgary, Crossroads, Capital 3. *continuing care*: A to G values (with some inflation) 4. *home care*: 2001/02 HCIS provincial average direct hourly cost for provider types

Pool Size (for scaling expenditure weights) 1. total formula funding pool = $3,219 million 2. sector distribution of total pool based on 1999/00 MIS expenditure allocation, and 80.3%/19.7% ACCS/FFS supplement split for Amb care pool	**Pool Size (for scaling expenditure weights)** 1. total formula funding pool = $3,xxx million 2. sector distribution of total pool based on 2001/02 MIS expenditure allocation
PPP Allocation PPP pool divided into 4 age sub-pools (age 0-14 40%; age 15-64 17%; age 65+ 13%; all ages 30%) for allocation to RHAs on basis of weighted population	**PPP Allocation** PPP pool divided into 3 age sub-pools (age 0-19 62%; age 20-64 26%; age 65+ 12%) for allocation to RHAs on basis of weighted population
Community Lab Allocation Non-formula allocation.	**Community Lab Allocation** Historical non-formula allocation replaced by modified population formula allocation.
Non-Formula (Line Items) Funding	**Non-Formula (Line Items) Funding** Several non-formula funding items from 2002/03 (Community Lab, Community Rehab, MRI Operating, Other Physician Compensation, Action for Health, OP Ambulance Transfers, Costing Project) eliminated (i.e. dollars rolled into population formula funding). Several non-formula items from 2002/03 (Rosehaven, STD/TB Clinics, Emerging Drugs, Education Centre, AIDS Hotline) transferred to PWS. New non-formula items are Cost Adjustment Factor (substantially revised) and Rural Dialysis.
Import/Export 1. Identified activity based on 2000/01 data. 2. Inpatient RIW multiplier of $3,664.	**Import/Export** 1. Identified activity based on 2001/02 data. No import/export activity identified for home care. 2. Inpatient RIW multiplier of $3,610. 3. ACCS edit for multiple records.
Minimum Guarantee Each RHA guaranteed an increase in funding from previous year (2001/02) equal to its population growth and aging impact, plus 1%.	**Minimum Guarantee** Each RHA guaranteed a 3% funding increase from previous year (2002/03), prior to Northern Allowance and Mental Health Transfer.

POPULATION

Population Data Source

The population data source for the funding model, as chosen several years ago by a Ministerial Committee on Funding, is the AHCIP *Population Registry* file. The *Population Registry File* is generated from the *Stakeholder Registry System*, which was designed primarily for Alberta Health Care Insurance Plan premium billing purposes. The Registry file includes all known residents of Alberta that have been determined to be eligible for Health Care Insurance coverage. It excludes some residents, such as the RCMP and military service personnel, whose health care is paid for by the Federal Government.

Various sources are used to maintain the AHCIP registration data, and information is updated daily. Alberta Health and Wellness currently processes retroactive changes to the file as far back as 24 months.

The base population data used in calculating the 2003/04 funding capitation rates is the Registry population as of March 31, 2002, as seen four months later at July 31. A four month lag for adjustments is necessary to allow for the bulk of retroactive adjustments. Included on the Registry file are the resident's:

- address
- gender
- date of birth
- some socio-economic elements (e.g. eligibility for premium assistance, coverage as a member of Health Canada's Treaty Indian group)

Individuals receiving social service benefits - one of the four socio-economic groups used for Population Based Funding - are identified from a data file received from Alberta Family and Social Services for March 31 (only those individuals listed in specific support categories).

All registrations with the necessary data elements are included in the calculation of the expenditure and funding capitation rates, but only **active** registrations with identified age, gender, socio-economic status and RHA residence are used for population based funding allocation to RHAs. Thus, a registration record without an RHA or age identifier is excluded.

Population Residency

When Alberta's RHAs were originally created, there was a requirement to be able to assign each Alberta health care registrant to an RHA based on the residency of the registrant. After reviewing various options to achieve this requirement, it was determined that using the postal code from the registrant mailing address provided the most viable, although not totally foolproof,

option. A mailing address is required to register for basic health services. A physical address field is available in the population registry, but it is not a mandatory field and not fully utilized. Consequently, registrant postal codes (as at March 31) are used to determine region of residence for purposes of regional funding allocation.

For residents of continuing care facilities, the postal code is set to the postal code of the facility. For 2003/04 funding, the Resident Classification System survey from the fall of 2001 was used for residency determination as of March 31, 2002. For health care registrants out of province (sabbatical leave, temporary employment, etc.) who only have their out-of-province address recorded in the Registry file, the last known Alberta postal code obtained from the Statistical Registration History Master is used to determine residency for Population Based Funding purposes. For registrations with Bad Address Flags, the flag is ignored and the region of residence becomes the location of the bad address postal code.

Assignment of postal codes to an RHA is not a simple or straightforward task. There are approximately 70,000 active postal codes in use in Alberta, and all of Alberta is not neatly divided up into postal code areas. Postal codes only specify to Canada Post where mail is to be delivered, which includes rural post office boxes which are accessed by individuals over an undefined geographic area.

Assignment of each postal code to a region by Alberta Health and Wellness is based on the "representative points" which Statistics Canada assigns to each postal code to refer to a specific geographic location (a coordinate proxy for the postal code location). For rural areas, one representative point is normally associated with each census enumeration area (in the absence of any cluster, the point is placed at the visual centre of the enumeration area), and thus it can simply be a matter of determining which census enumeration areas fall into which RHA. Where one postal code covers a large geographical area (i.e. multiple representative points) located within two or more RHAs, all registrants are assigned to a single RHA on a "best assumption" basis. In general, assignment of postal codes to a region is less reliable for rural areas where postal codes, in many cases, cover mail delivery points over a large geographical area. It is also recognized that postal code may not be the most appropriate residency indicator for Population Based Funding in cases where addresses are maintained by family but the dependant's address is different.

While improvements have been explored in determining residency for the health care registrants, it should be remembered that the financial impact from misassigned residents is minimal, on average, for any region as a result of the import/export mechanism of regional funding. For example, even if a region does not receive Population Based Funding for one of its actual residents, it would receive an import funding adjustment for all health services which it provides to that individual. The import/export mechanism, described later in the manual, compensates regions for residents serviced from outside of their identified region.

Population groups

Altogether, there are 124 population groups identified for Population Based Funding. These are the result of:

- *twenty* age groups: (<1,1-4,5-9,10-14,15-19,20-24,25-29,30-34,35-39,40-44,45-49,50-54,55-59,60-64,65-69,70-74,75-79,80-84,85-89,90+)
- *two* gender groups: (male, female)
- *four* socio-economic groups:
  - aboriginal (Treaty Status) under age 65
  - welfare (those receiving social assistance during the year) under age 65
  - subsidy (those with subsidized health care premiums) under age 65
  - other (this group represents the majority of Albertans including all persons age 65+)

Composition by socio-economic group:

28	aboriginal (under age 65) groups	[14 age groups x 2 gender groups]
+ 28	welfare (under age 65) groups	[14 age groups x 2 gender groups]
+ 28	subsidy (under age 65) groups	[14 age groups x 2 gender groups]
+ 40	other groups	[20 age groups x 2 gender groups]

= 124 population groups

Each of these groups must be mutually exclusive for the funding model. The Registry file can only include one age or gender per individual, but it is possible that an individual could belong to more than one socio-economic group. For such cases, a decision hierarchy is imposed with the following order: aboriginal, welfare, subsidy, other.

These population groups were chosen because of the known sensitivity of health care needs to age, gender and socio-economic status. Estimated health expenditures per person are most sensitive to the *age* factor. The age group 1-19 years has an estimated average annual per capita regional health expenditure rate (not including PPP or community lab) of $353, compared to the average rate of $5,338 for the 65+ age group, which is fifteen times higher! Various age group expenditure rates are shown below:

age	***average per capita rate ($)***
< 1	2,341
1-19	353
20-44	502
45-64	793
65-69	2,004
70-79	3,789
80-89	9,745
90+	25,203

Gender is a less important determinant of health expenditure, but accounts for significant differences in the child-bearing years. On average, females in the child-bearing years incur about twice as much health care expenditure as males in the same age group.

In addition to age and gender, health expenditure needs also vary significantly by *socio-economic status* (note: the Population Formula is structured on the premise that socio-economic status is only a good predictor of health needs for the population under 65 years of age). The capitation rates are highest for those in the *welfare* group (about five times higher, on average, than the regular non premium subsidy group), followed by *aboriginal* (about two times higher than the regular group), and then *subsidy* (about 1.5 times higher than the regular group).

POPULATION COMPOSITION
(by socio-economic status)

As of March 31, 2002

		Under 65				
	Age 65+	Aboriginal	Premium Support	Welfare	Regular	Total
RHA	%	%	%	%	%	%
R1	13.3	7.4	12.7	2.9	63.7	100.0
R2	12.7	0.8	10.8	2.2	73.5	100.0
R3	9.1	1.8	8.9	2.0	78.3	100.0
R4	11.6	4.7	10.8	2.6	70.3	100.0
R5	15.4	0.8	12.6	2.1	69.0	100.0
R6	10.6	2.6	10.3	3.2	73.2	100.0
R7	10.0	10.9	10.5	2.2	66.4	100.0
R8	8.3	7.7	11.1	2.0	70.8	100.0
R9	2.6	15.5	7.5	1.2	73.3	100.0
Total	**10.2**	**3.6**	**10.0**	**2.5**	**73.6**	**100.0**

Population Projection

Population formula funding applies capitation funding rates to each region's **projected** population for the funding year. For 2003/04 funding, this requires a projection of March 31, 2002 population data to September 30, 2003 (mid-point of fiscal year).

Projected annual growth of each population cell (registered persons by age, gender and socio-economic group in each community) is based on the pro-rated (12 months to 18 months) historical growth from March 31, 2001 to March 31, 2002. Projected population is then scaled

by the same factor to produce an overall provincial population increase equal to the forecasted provincial population growth for 2003/04 of 1.8%.

DATA EXCLUSION PROCESS APPLIED TO 2001/02 ACCS FILE

Edits applied to Valid ASN's (Exclude 0000000000 PHN numbers)

Edits applied to records for unique individuals with > 1 record reported for same day visit

Stage 1: Limit the number of records

ACCS	ACCS_DESCR	Maximum # of Records marked with a "0"
1062	Group Therapy	5
2001	Critical Care Unit or O.R. with Secondary Diagnosis	1
2002	Critical Care Unit or O.R. without Secondary Diagnosis	1
2003	Other Unit with Secondary Diagnosis	1
2004	Other Unit without Secondary Diagnosis	1
2082	Mode of Service - Telephone	3
62	Hemodialysis	2
62.1	Home Hemodialysis Teaching	2
62.2	Selfcare Hemodialysis	2
63	Transfusions	2
65	Chemotherapy -- Oncology	2
703	Radiotherapy	1
704	IV Therapy -- Non Cancer Related	6
72	Peritoneal Dialysis	2
72.1	Home Peritoneal Dialysis Teaching	2
73	Diagnostic Investigation of Vascular System	1
74	Nuclear Imaging	1
75	CAT Scan	1
76	MRI	1
78	Chest Xray	1
79	Other Xray	1
80	Mammogram	1
81	Ultrasound	1
82.1	Extensive Sleep Studies	1
82.2	Other Sleep Labs	1

Stage 2: Edit remaining records for the unique individual on a UNIQUE KEY basis

Seven fields added together into a string to make up the unique key:

- ASN
- Date of Service
- Site ID
- Provider Type
- MIS Functional Centre
- Mode of Service
- ACCS Grouper Code